CLAIMS

1. A solid state imager comprising:

a semiconductor substrate; a plurality of channel regions arranged in parallel with each other a fixed distance apart on a surface of said semiconductor substrate; a plurality of isolation regions provided in gaps between said plurality of channel regions; a plurality of transfer electrodes arranged above said semiconductor substrate so as to extend in a direction transverse to said plurality of channel regions; a plurality of power supply lines arranged over said plurality of transfer electrodes along said plurality of isolation regions;

a light transmitting insulating film laminated onto said plurality of transfer electrodes so as to cover said plurality of power supply lines; and a light transmitting lens film laminated onto said insulating film, wherein

a film thickness of said insulating film is thicker at a center of said isolation regions and thinner at a center of said channel regions, and

said lens film is shaped such that a surface thereof forms continuous convex portions above said isolation regions convex towards said channel regions, and

said lens film has a refractive index higher than that of a substance provided in a layer above said lens film.

2. A solid state imager according to claim 1, wherein

a film thickness of said insulating film becomes progressively thinner above said isolation regions towards said channel regions.

3. A solid state imager according to any one of claim 1 and claim 2, wherein

said lens film has a refractive index higher than said insulating film.

4. A method of manufacturing a solid state imager, comprising:

a first step for arranging a plurality of channel regions in parallel with each other a fixed distance apart on a surface of a semiconductor substrate, and forming a plurality of isolation regions in gaps between said plurality of channel regions;

a second step for forming a plurality of transfer electrodes above said semiconductor substrate so as to extend in a direction transverse to said plurality of channel regions, and forming a plurality of power supply lines above said plurality of transfer electrodes so as to cover said isolation regions;

a third step for laminating a light transmitting insulating film having a predetermined film thickness onto said plurality of transfer electrodes;

a fourth step for forming a mask pattern which covers said plurality of power supply lines and extends along said plurality of channel regions on said insulating film;

a fifth step for etching said insulating film anisotropically along said mask pattern, and thinning a film thickness of said insulating film along said plurality of channel regions;

a sixth step for laminating a light transmitting lower lens film onto said insulating film;

a seventh step for forming concave portions over said isolation regions by etch back processing of said lower lens film; and

an eighth step for laminating a light transmitting upper lens film onto said lower lens film, wherein

said upper lens film has a refractive index higher than that of a substance provided in a layer above said upper lens film.